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Forestry Report R8-FR 6

January 1987

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United States
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Technology Update

Southern Region, USDA Forest Service, 1720 Peachtree Rd., N.W., Atlanta, Ga. 30367

CURRENT SERIAL RECORDS

Microcomputer Software for Use in Urban Tree Evaluation

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You may wish to establish the value of individual shade and landscape trees to meet several needs:

- *Proof of a casualty* loss that would establish a reduced real estate value caused by losses from a storm.
- *Property damage* loss to trees by actions of another person, e.g., damage from a motor vehicle that hits a tree.
- *Trespass loss* by willful removal of trees from your property.
- *Right-of-way designation* across your property by a government agency or utility.

The most accepted procedure used to designate the value of such trees has been developed by the International Society of Arboriculture in cooperation with the National Arborist Association. They employ this formula: Tree value = Basic value X Species class X Tree condition X Tree location.

This tree value formula may be easily applied with the aid of a microcomputer software package developed at the University of Georgia. The software is intended for use by professionals in evaluating street and shade trees. An added feature is the capacity of this software to calculate tree volumes using applicable volume tables.

The program includes both a long form with complete text explanations and a short form that performs calculations only. Species values are addressed in a species list with a complete editor that allows you to easily create customized species lists for your part of the country. A species list is included for northern Georgia.

All program variables are easily manipulated. If a large number of calculations are to be made with many trees, you may use a summation feature that keeps a running total of all values and volumes. Printable from the disk, through the menu, are blank worksheets for field use and program documentation. A menu offers example calculations showing all variables used as input, and all values and volumes from output.

Procedure

Value estimation is based upon five components of a tree that affect value:

1) The size of a tree in cross sectional area.
2) The value of a species in the general landscape.
3) The overall condition of the tree.
4) The location of a tree.
5) The estimated value level for each growth increment.

The first step is to measure the size of the tree at 4-1/2 feet above the ground on the uphill side. Insert this measurement in the computer as either a diameter in inches or as a circumference in inches.

The second step is to estimate the total height of the tree (in feet) and the merchantable height of the main stem to a point on the trunk where the tree is 8 inches in diameter. If you cannot estimate either total height or merchantable height, then insert (0). The program will then leave out any calculations using height information.

The third step concerns the idea that some tree species are inherently more valuable for shade or street plantings than are others. Some trees make good shade trees and add a substantial value to a site, while other tree species may not be suited to a site or a particular use and, therefore, have little value.

Because of the confusion in different regions, or States over the proper common name of a tree, only scientific names are used. A scientific name must be inserted in two parts, genus (e.g., *Quercus*) and species (e.g., *alba*) is the two-part name denoting white oak. The quality rating of the tree for its shade

and street use is given along a scale of 1 to 100. A score of 100 represents the perfect shade and street tree. You can accept the quality rating from the species list stored in the computer program or insert a new quality rating into the species list through the editor. You can also substitute your own quality rating for a given example.

The fourth step is to judge the condition of the tree. Some trees are perfect specimens in perfect condition. Most trees are not. Classify the condition of a tree on a 1 to 100 scale, with 1 being either a dead or a dying tree, and 100 representing a perfect specimen in perfect condition. Descriptions are included to help you set the condition class. Enter a zero (0) as a condition rating to invoke a special HELP routine to assist you.

In the fifth step, determine a tree-location value. Some trees, simply by their location, are more valuable than other trees. The location value rating includes the tree's actual site, how well that particular tree satisfies the function for which it was planted, and how well the tree was inserted into the environment. Lower values should be given for trees with crowns crowded by other trees, those interfering with utilities, close proximity to sidewalks or streets, and trees with potential for public safety problems. Include aesthetic, micro-climatic, environmental, architectural, landscape, historic, and physical factors in your selection of a location rating. The tree location rating is along a 1 to 10 scale following specific descriptions.

The final step is the value a tree has per square inch of cross-sectional area. This value varies by the use of a tree, the economic conditions, and the social conditions within our society. This value varies among appraisers and is quite subjective. The current value factor used in the program is $20, which is an average of what a number of area tree appraisers use. This value can be changed easily for calculations. The default value is always listed so you know what value you are working with. The program will handle a range of values from $5 to $30.

Calculations are then made on the information you have submitted. The results appear on the screen. If you have a printer, a hardcopy of the results plus the variables used in the calculations can be printed. The results are a tree value in dollars and two volume estimates, total board feet (International1/4 scale) and estimated cords.

Guidelines

The estimated tree value produced should be considered the high end of estimated values. The low end of tree value is probably the replacement cost of the tree plus the value of any merchantable product derived from the displaced tree. Some organizations involved with taxes, insurance, or civil court cases may or may not accept this system of evaluation. Always seek professional advice of a qualified tree appraiser to determine the specific parameters of your tree.

Order Information

The software was developed for IBM-compatible computers with MS - or PC-DOS.

If you work for a government agency, you can receive a copy without charge by sending a formatted 5-1/4 inch disk, which includes your operating system, and a postage-paid return mailer to the following address:

Computer Services Department
Cooperative Extension Service
Hoke Smith Building
The University of Georgia
Athens, Georgia 30602
Telephone: 404/542-5387

Ask for disk name - URBAN TREE VAL and for disk number = AFSOO4.

Private citizens and companies may purchase the software by sending $10 per disk to:

Cooperative Extension Service
Management Operations
Computer Software Order
ATTN: Marilyn Huff-Waller
Athens, GA 30602

Make check payable to the "Cooperative Extension Service, The University of Georgia."

Ask for disk name - URBAN TREE VAL and for disk number = AFS004.

Two sources provide the primary basis for this work: The International Society of Arboriculture handbook, *Guide for Establishing Values of Trees and Other Plants*. (International Society of Arboriculture, P.O. Box 71-5, Lincoln Square, Urbana, IL 61801), and the related Extension Folder, 445 *Shade Tree Evaluation*, by Patrick J. Weicherding Agricultural Extension Service, University of Minnesota. (This folder has been superseded by Extension Folder CD-FO-0726; copies are available at 50 cents from the University of Minnesota, Room 3, Coffey Hall, 1420 Eckles Avenue, St. Paul, MN 55108.)

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